Appendixes, Glossary, Bibliography, Preparers, Index

Appendix A: Laws and Executive Orders

September 25, 1890 — Sequoia National Park established, including only the drainage of the South Fork of the Kaweah River — Garfield Grove and Hockett Meadow (26 Stat. 478, 16 USC 41).

October 1, 1890 — General Grant National Park established. Sequoia boundary modified to include Giant Forest and its surroundings (26 Stat. 650).

1907 — Permit granted to construct Kaweah no. 3 hydroelectric plant.

May 1913 — 50-year permit granted by secretary of the interior for operation of Kaweah no. 3.

July 3, 1926 — Sequoia National Park expanded to Sierra Nevada crest, adding Kern Canyon and Mount Whitney areas. Mineral King Valley is excluded and declared Sequoia National Game Refuge (44 Stat. 818).

March 4, 1940 — Kings Canyon National Park established by Congress and boundary is expanded to approximate present condition (54 Stat. 41, 16 USC 80a).

June 21, 1940 — Presidential proclamation adds land in Redwood Canyon (~10,000 acres) to Kings Canyon National Park (54 Stat. 2710).

December 21, 1943 — Act to authorize acquisition and addition of land now used for the Buckeye housing area to Sequoia National Park, including land exchanges with Southern California Edison Company (57 Stat. 606).

July 21, 1949 — Sequoia National Park boundary changed pursuant to 1943 statute.

October 19, 1951 — Sequoia National Park boundary changed pursuant to 1943 statute.

August 14, 1958 — About 10 acres of Sequoia National Park (Cabin Cove) transferred to the Sequoia National Game Refuge, within Sequoia National Forest (72 Stat. 604, 16 USC 45a-3). Summit Meadow transferred to Sequoia National Forest (72 Stat. 616). About 210 acres of Sequoia National Forest lands at Big Stump added to Kings Canyon National Park (PL 85-666, 72 Stat. 617).

June 21, 1963 — Secretary of the interior is authorized to permit continued operation of Kaweah no. 3 (PL 88-47).

August 6, 1965 — Tehipite Valley (2,659 acres) and floor of the Kings Canyon (2,879 acres) transferred to Kings Canyon National Park from Sierra National Forest and Sequoia National Forest, respectively (PL 89-111, 79 Stat. 446).

1976 — Sequoia and Kings Canyon National Park designated an international biosphere reserve.

November 10, 1978 — Mineral King Valley (Sequoia National Game Refuge) added to Sequoia National Park (PL 95-625).

September 28, 1984 — California Wilderness Act of 1984 establishes Sequoia/Kings Canyon Wilderness; transfers Jennie Lakes addition to Kings Canyon National Park (PL 98-425, 98 Stat. 1619).

June 19, 1986 — Secretary of the interior is authorized to permit Kaweah no. 3 to operate for 10 years (PL 99-338).

November 3, 1987 — The Wild and Scenic Rivers Act (16 USC 1274(a)) is amended to add the Middle Fork and the South Fork of the Kings River, including all park segments (PL 100-150, 101 Stat. 881).

November 24, 1987 — The Wild and Scenic Rivers Act is amended to add the North Fork of the Kern River, including all park portions (PL 100-174).

December 28, 2000 — Secretary of the interior is instructed to acquire Dillonwood, with an automatic boundary change (PL 106-574, 16 USC 45(g)).

December 5, 2001 — National Park Service takes possession of Dillonwood.

Appendix B: Mission Goals for Sequoia and Kings Canyon National Parks

Mission Goals: Resource Management

Mission Goal Ia: Natural and cultural resources and associated values are protected, restored, maintained in good condition, and managed within their broader ecosystem and cultural context.

Natural Resources

Vegetation

Native plants are preserved as part of natural functioning ecosystems.

Native plant species and threatened/endangered and sensitive plant species are inventoried, monitored, protected, and restored/maintained over time.

Native plant species extirpated from the parks are restored, where feasible.

Exotic plant species and exotic plant diseases are controlled/contained, where feasible.

The giant sequoia groves — particularly Giant Forest — and the ecosystems they occupy are restored, maintained, and protected.

Plant communities that have been altered by fire suppression are restored/ maintained through restoration of the natural fire regime to the maximum extent possible.

Plant communities that have been altered by domestic grazing are restored to as natural a condition as feasible.

Areas disturbed by administrative / visitor use, past developments and construction, where feasible, are returned to natural conditions.

Vegetation in the parks' development zone is restored and/or maintained as a healthy, vigorous vegetative community that approximates the "natural" state, given the constraints of past and present human intervention, while providing as safe an environment as possible for human use and enjoyment.

Recreational pack and saddle stock will be allowed within guidelines that protect the parks' natural resources and values, the processes that shape them, and the quality of experience distinctive to them.

Aquatic and Water Ecosystems

Aquatic and water ecosystems are restored and/or maintained so that physical, chemical, and biotic processes function uninfluenced by human activities.

Aquatic environments are inventoried and classified by physical and chemical characteristics and by biotic communities present.

A long-term monitoring program is developed to record ambient conditions and to document changes and trends in physical and chemical characteristics and biotic communities.

Changes within the aquatic environments that are caused by facilities, management activities, or visitor use patterns are located and documented, and unnatural changes are mitigated.

Park waters meet applicable state and federal water quality standards.

Impacts of acid deposition and contaminants from external influences are detected, evaluated, and mitigated.

Lakes and streams with exotic trout are returned to natural conditions.

Extant native species or genetically unique groups are restored to their former range to the extent feasible.

Waters incapable of sustaining fish populations through natural reproduction will be allowed to become barren.

Wildlife

Natural populations of wildlife, in which animal behavior and ecological processes are essentially unaltered by human activities, are perpetuated.

Native animal species and threatened/ endangered and sensitive animal species are inventoried, monitored, protected, and restored/maintained over time.

Native animal species extirpated from the parks are restored, where feasible.

Exotic animal species are controlled/ contained, where feasible.

Interactions between wildlife and people are mitigated, where feasible.

The natural distribution, ecology, and behavior of black bears and other native species are maintained/restored and free of human influences.

Air Resources

Air quality is returned to natural conditions.

Facilities and management activities are in compliance with the Clean Air Act and state and local air quality policies.

Impacts and levels of park air pollution are monitored.

Park staff, visitors, the public, and regulatory agencies are educated about park air quality.

The parks participate in federal, state, and local regulatory actions that affect the parks.

Effects of anthropogenic climatic change on ecosystems are minimized.

The natural ambient appearance of the night sky is maintained in all areas of the parks' natural zone. No native plant or animal populations are adversely affected by artificial lights within the parks.

The natural ambient soundscape (the absence of human-caused sounds) is maintained throughout the parks' natural zone. Within developed areas or areas of primary park features, human-caused noise is limited to daytime hours and is of a level, frequency, and duration that does not adversely impact national park values. No native plant or animal populations are adversely affected by human-caused sound within the parks.

Geological, Soil, and Paleontological Resources

Geological resources, including cave natural and cultural resources and karstic processes, which are of scientific, scenic and recreational value, are restored, protected, and maintained.

Geological processes and soils are not substantially impacted by human change.

Scientific studies and research concerning caves and karst resources and systems are conducted to increase the parks' scientific knowledge and broaden the understanding of its cave resources.

Cave natural and cultural resources, and karstic processes are preserved, restored, protected, and maintained.

Opportunities for the scientific study of cave resources and systems are provided and promoted to better understand and document park cave resources and caves in general.

Educational and recreational opportunities to explore park caves are provided for the parks' visitors.

Known paleontological resources are in excellent condition.

Abandoned mined lands are closed and/or mitigated as appropriate.

Cultural Resources

Prehistoric and Historic Archeological Sites

Archeological sites are inventoried and evaluated following current standards.

Significant sites are nominated for listing on the National Register of Historic Places.

Archeological sites are inspected and monitored, with priority given to sites listed on or eligible for the national register.

Actions are taken to protect threatened or negatively affected significant sites from threats or ongoing impacts.

Historic Structures

Historic structures are inventoried and evaluated following current standards.

Significant structures are nominated for listing on the National Register of Historic Places.

Historic structures are inspected and monitored, with a priority given to structures listed on or eligible for the national register.

Actions are taken to protect threatened or negatively affected significant historic structures from threats or ongoing impacts

Eligible structures are added to the List of Classified Structures.

Objects, Archival, Manuscript Collections

Museum objects are added to the National Catalog of Museum Objects within the parameters of the parks' "Scope of Collections."

Archival and manuscript collections are increased within the parameters of the parks' "Scope of Collections."

Material weaknesses are addressed in a timely fashion.

Consultations required by the Native American Graves Protection and Repatriation Act have been completed.

Cultural Landscapes

A cultural landscape inventory is undertaken for all developed areas within the parks.

All cultural landscapes are evaluated for eligibility for listing on the National Register of Historic Places.

Cultural landscapes eligible for the national register are nominated and listed.

Cultural landscapes are inspected and monitored.

Actions are taken to protect threatened or negatively affected significant cultural landscapes from threats or ongoing impacts.

Ethnographic Resources

An ethnographic overview is prepared.

Ethnographic sites are recorded in the cultural sites inventory once the component is established.

Ethnographic sites are inspected and monitored.

Actions are taken to protect threatened or negatively affected significant ethnographic resources from threats or ongoing impacts.

Mission Goal Ib: Legally designated and protected wilderness is managed to meet the standards and ideals of the Wilderness Act and as a component of a larger regional wilderness area.

Natural resources within wilderness areas are restored where feasible to natural conditions.

Natural resources within wilderness areas are managed to preserve wilderness character.

Cultural resources within wilderness areas are managed so as to not adversely affect their known or potential status for listing on the national register, while preserving wilderness character.

Mission Goal Ic: The parks contribute to knowledge about natural and cultural resources; management decisions about resources and visitors are based on the best available scholarly and scientific information.

Natural Resources

A thorough knowledge of the state of the parks' natural resources is acquired over time.

Scientific research that promotes an understanding of the parks' resources and the impacts that affect those resources is encouraged.

The general ecosystem elements and processes of the parks, the natural forces controlling them, and the potential for human activities to affect them are understood, using the best available knowledge.

A long-term ecological monitoring program, including vital signs and a complete inventory of the parks' natural resources, is implemented.

Giant sequoia ecology and the impacts of human activities on the trees and the ecosystem they inhabit are known, based on the best available knowledge.

Current and potential effects on the parks' natural resources from external stressors, including exotic organism invasions, air pollution, anthropogenic global change, and boundary/island effects are understood, using the best available knowledge.

An information storage and analysis system that effectively and efficiently provides the parks with accurate and comprehensive parks' natural resources information is developed.

Significant natural resource information is made available to visitors, the public, and the park staff.

Cultural Resources

A thorough knowledge of the state of the parks' cultural resources is acquired over time.

Scientific research that promotes a better understanding of the parks' cultural resources and museum collections is encouraged.

A long-term monitoring plan for the parks' cultural resources, including recognition of vital signs, is developed.

Current and potential impacts that adversely affect, or have the potential to adversely affect, the parks' cultural resources or museum collections are known and understood, using the best available knowledge.

Databases involving the parks' cultural resources and museum collections are maintained and updated.

All research affecting the parks' cultural resources or museum collections is published or made available to the public through other appropriate media.

MISSION GOALS: VISITOR EXPERIENCE

Mission Goal IIa: Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities.

Visitor and employee safety and health are protected.

Park recreational uses are promoted and regulated. Basic visitor needs are met, in keeping with the parks' purposes.

New and remodeled buildings, outdoor developed areas, and features are accessible to all visitors, including those with disabilities, in compliance with federal standards. However, it may not be possible to make all sites or historic buildings accessible because the required changes would affect the integrity of the feature or the historic structure. In these cases interpretive brochures or programs could help convey an experience to visitors.

Mission Goal IIb. Park visitors and the general public understand and appreciate the preservation of the parks and their resources for this and future generations.

Visitors understand and appreciate park values and resources and have the information necessary to adapt to the park environments. Visitors have opportunities to enjoy the park in ways that leave park resources unimpaired for future generations.

Park use and development are designed or managed to conserve park resources in an unimpaired state and to ensure that visitors continue to have the opportunity for high-quality experiences.

Mission Goal IVa. Sequoia and Kings Canyon National Parks use current management practices, systems, and technologies to better preserve park resources and to better provide for public enjoyment.

Facilities in all zones comply with the local expression of the parks' architectural guidelines; facilities in the backcountry reflect a primitive character.

Park staff work with appropriate experts to make the parks' facilities and programs sustainable.

New and remodeled buildings and facilities reflect the NPS commitment to energy and resource conservation, as well as durability.

Park staff support and encourage suppliers, permittees, and contractors to follow sustainable practices.

Utilities are limited to those determined to be necessary and appropriate for each site. Services are provided in the most efficient and sustainable way possible, and utilities are located in such a manner that conserves park resources in an unimpaired state and that is inconspicuous. Related aboveground elements and access points are screened from visitors wherever possible.

Facilities and park development meet minimum Leadership in Energy / Environmental Design (LEED) standards.

Appendix C: Cultural Resources in Sequoia and Kings Canyon National Parks

Archeological and Ethnographic Resources

Parkwide surveys and consultations for archeological and ethnographic resources, respectively, have not occurred. In the backcountry 26 archeological sites have been recorded that show obsidian fragments. The presence of obsidian tools, which were highly prized for their sharpness, suggests trade since mineral analysis of the obsidian shows that some of it came from distant sources (Roper Wickstrom 1992). Sites in east-west passes like Taboose Pass in Kings Canyon National Park suggest trade routes as well as the presence of women with children accompanying the men hunters because grinding stones indicate food preparation associated with stone structures thought to have served as hunting blinds as well as temporary shelters. At least one site suggests evidence of use over many years because of the range of artifacts, from prehistoric stone tools to 19th century trade beads, with dates ranging from 1200 B.C. to A.D. 1850.

The Groenfeldt archeological site was added to the National Register of Historic Places on March 30, 1978, and Hospital Rock on August 29, 1977. The latter has ethnographic as well as archeological significance and merits a nomination amendment for eligibility evaluation as a possible traditional cultural property.

The Native American consultations report (see appendix D) discusses the mutual idea of identifying certain plant gathering areas in the parks important to neighboring American Indian tribes. Other types of possible ethnographic resources, including sacred sites and places for the indigenous use of fire as an environmental management tool, were not brought up as points of discussion and importance by the tribes consulted. Such topics are appropriate for continued Native American consultations, as well as whether certain ethnographic resources might be eligible for traditional cultural property status on the National Register of Historic Places.

List of Classified Structures

Ash Mountain
- Entrance Sign
- Garage 296
- Garage for Residence 92 & 100
- Garage for Residence 93 & 94
- Garage for Residence 96
- Gas Station
- Residence 5 and Garage
- Residence 7
- Residence 9 and Garage
- Residence 12 and Garage
- Residence 14
- Residence 15 and Garage
- Residence 16
- Residence 17A
- Residence 29
- Residence 64 and Garage (also for Residence 63)
- Residence 77 and Garage (also for Residence 78)
- Residence 88 and Garage (also for Residence 87)
- Residence 91 and Garage (also for Residence 90)
- Residence 95 and Garage
- Residence 97 and Garage
- Residential Area Rock Work
- Sycamore Village Store House
- Sycamore Village Store House
- Sycamore Village Recreational Hall
- Sycamore Village Tack and Hay Storage

Backcountry
- Barton-Lackey Cabin
- Cabin Creek Ranger Residence
- Cabin Creek Dormitory and Garage
- Cloud Canyon Shorty Lovelace Cabin
- Gardiner Creek Shorty Lovelace Cabin
- Granite Pass Shorty Lovelace Cabin
- Hockett Meadow Ranger Station
- Hockett Meadow Tack-Storage Room
- Kern Canyon Ranger Station
- Kern River Trail Bridge
- Lewis Camp Irrigation Canal
- Muir Hut
- Quinn Ranger Station
- Pear Lake Ski Hut
- Redwood Meadow Ranger Station
- Redwood Meadow Tack-Storage Cabin
- Redwood Mountain Ranger Station
- Redwood Mountain Equipment Storage
- Sawmill Site Ditches
- Smithsonian Institution Shelter
- Tyndall Creek Shepherd's Cabin
- Woods Creek Shorty Lovelace Cabin
- Vidette Meadow Shorty Lovelace Cabin

Cedar Grove
- Knapp Cabin
- Ranger Station
- Storage Shed

Crystal Cave
- Barrier Gate
- Comfort Station & Generator
- Trail

Generals Highway
- Clover Creek Bridge (Lodgepole)
- Generals Highway
- Hospital Rock Automobile Watering Stations
- Hospital Rock Stone Steps
- Hospital Rock Stone Water Fountain
- Marble Fork Bridge (Lodgepole)
- Silliman Creek Culvert
- Tunnel Rock

Giant Forest
- Cattle Cabin
- Colony Mill Road
- Giant Forest District Ranger's Residence
- Giant Forest Market
- Moro Rock Comfort Station
- Moro Rock Stairway
- Squatter's Cabin
- Tharp's Log
- Village Comfort Station

Grant Grove
- Chief Ranger's Horse Barn
- Chief Ranger's Residence
- Gamlin Cabin
- Old Superintendent's House
- Warehouse and Maintenance Shop

Mineral King
- Alles Cabin
- Atwell Mill Ranger Station
- Atwell Mill Ranger Station Garage

Lodgepole
- Carpenter's Shop
- Comfort Station
- Comfort Station and Showers
- Residence 81
- Residence 82
- Residence 85

Lost Grove Comfort Station

Wolverton
- Residence 89

Cultural Landscape Inventory

The Cultural Landscape Inventory (CLI) is an evaluated inventory of all cultural landscapes in which the National Park Service has or plans to acquire any legal interest ("evaluated" means that the inventory focuses on National Register eligible landscapes). The purpose of the CLI is to identify, document, analyze, and evaluate cultural landscape resources in a concise manner, with sufficient information for a National Register determination of eligibility. The CLI does not make treatment recommendations, and it can address a landscape (e.g., an entire park) or a component landscape (e.g., a section of a park). CLI levels serve various purposes, as described below:

Level 0 — Includes preliminary identification of landscapes and component landscapes within a park, identification of immediate threats to cultural landscape resources, and a determination of cultural landscape inventory priorities.

Level 1 — Includes a reconnaissance survey of a specific landscape or component landscape, basic overview of cultural landscape resources, and preliminary assessment of significance sufficient to determine if a level 2 evaluation is needed. Level 1 involves a brief site visit and use of existing documentation.

Level 2 — Includes identification and analysis of significant landscape characteristics and preparation of statement of significance, condition assessment, and integrity evaluation. Level 2 also includes an analysis of the history of landscape treatment and provides information for National Register of Historic Places determination of eligibility. Level 2 involves historical research and fieldwork.

Level 3 — Includes description, analysis, and evaluation of a specific landscape feature.

TABLE C-1: CULTURAL LANDSCAPE INVENTORY, SEQUOIA AND KINGS CANYON NATIONAL PARKS

Inventory Unit	Level 0	Level 1
Ash Mountain	x	x
Atwell Mill campground	x	
Barton Lackey complex	x	
Bear Paw Meadow	x	
Buckeye Flat campground	x	x
Buckeye housing area	x	x

Inventory Unit	Level 0	Level 1
Cedar Grove ranger station	x	
Colony Mill Road	x	
Crystal Cave developments	x	x
Dillonwood	x	
Early trail system	x	
High Sierra Trail	x	
Muir Trail	x	
General Sherman Tree area	x	
Generals Highway	x	x
Giant Forest	x	x
Grant Grove	x	x
Hospital Rock	x	x
Kern ranger station	x	
Lodgepole	x	x
Middle Fork Canyon hydroelectric developments	x	
Mineral King Historic District	x	
Potwisha campground	x	x
Sycamore CCC Camp	x	x

Appendix D: Native American Consultations

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SUMMARY

Various American Indian tribes have occupied over time or are contemporary neighbors of the lands that now comprise Sequoia and Kings Canyon National Parks, California. As part of its ongoing planning, the National Park Service (NPS) conducted consultations with affiliated tribes (Steward 1935; Herron 1980; Elsasser 1988) on both sides of the Sierra Nevada during the week of July 11, 1999. The results of these meetings are outlined in the present report.

During these consultations, American Indians spoke of two major ideas for NPS consideration. The first is for interested tribes and the NPS to share information for their mutual benefit about areas in the parks where certain plants that continue to be used traditionally grow, including interest in sharing fire expertise and receiving advice on instituting a tribal prescribed fire program.

The second is to pursue the construction of a traditional Indian village in the parks for visitor education. Visitors would interact at this "village" to learn about American Indian beliefs as well as certain aspects of the traditional material culture such as tool production and the use of particular items of everyday life. These key ideas are delineated below along with other concerns heard during the consultation trip.

NOMENCLATURE

The term *American Indian* is employed in this report if a particular people's tribal name is not mentioned, such as the Sierra Foothills Wuksachi. Taken from federal law and executive orders, the broader term *Native American* is used when referring to the process of conducting consultations. *Native American consultations* nationwide include American Indians and other Native Americans such as Alaska Natives and Native Hawaiians.

PURPOSE OF TRIP

The purpose of Native American consultations in this instance was to seek information for park planning and to build better relationships among the neighboring tribes and the two parks. Input specifically was sought for the ongoing general management plan underway for Sequoia and Kings Canyon National Parks and the environmental impact statement that will accompany it (GMP/EIS).

During the July 1999 trip, the National Park Service conducted Native American consultations on the east and west sides of the Sierra Nevada at the request of Michael J. Tollefson, then superintendent of Sequoia and Kings Canyon National Parks. The National Park Service recognizes that indigenous peoples may have traditional interests and rights in lands now under NPS management, as well as concerns and contributions to make for future park management

plans. In general, Native American consultations are required by various federal laws, executive orders, regulations, and policies. They are needed, for example, to comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, most recently in 1992. Implementing regulations of the Council on Environmental Quality for the National Environmental Policy Act of 1969 (NEPA) also call for Native American consultations.

Information was sought on this trip about past and present American Indian links to the two parks. Queries were made about possible ethnographic resources within the parks. Ethnographic resources consist of features of the landscape that are linked by members of a contemporary community to their traditional ways of life. Such linkage would include social practices, cultural values, and intellectual beliefs of a group or a people that are pertinent to their history, heritage, and identity. Not only may historic places and structures be included, but also natural places and materials associated with culturally defined uses. This is especially true of places where American Indians gather certain plants for personal medicinal purposes or for the weaving of baskets, as this report mentions for the Wuksachi. Natural areas may be associated with any number of traditional everyday cultural activities or with practices of special cultural significance (Nabokov et al. 1994:iii; NPS 1997d:168; NPS 1998:1, 9; Schoepfle et al. 1998:2).

The parks' then Superintendent Michael Tollefson designated Thomas L. Burge, the parks' Native American coordinator and cultural resource specialist, as his representative for the consultation meetings. During the trip Lawrence F. Van Horn assisted Mr. Burge. Dr. Van Horn is a cultural resource specialist in Planning and Design Services at the Denver Service Center of the National Park Service. On the eastern side of the Sierra Nevada, Burge and Van Horn consulted in the Owens Valley, California. On the western slope, consultations took place in the northern and southern foothills relating to the parks' geography.

Burge and Van Horn conducted small-group meetings or interviews among the eight tribes visited. Discussion was encouraged in each instance. Two interviews with former tribal chairpersons were conducted — with Terald Goodwin of Lone Pine and with Vernon Miller of Fort Independence — mentioned below. The same arrangement was true for the Wuksachi meeting. It was an extended interview with Marie Dominguez Riley, tribal chairperson; this interview lasted the afternoon of Friday, July 16, 1999.

Burge and Van Horn met and talked with a total of 33 people. For the parks' record and the possibility of follow-up communication, their names, titles or positions, and mailing addresses with telephone numbers and electronic mail addresses, if available, are listed later in this report.

In addition to the tribes affiliated with the parks as suggested by the work of anthropologists Julian Steward (1935), John Herron (1980), and Albert Elsasser (1988) as noted earlier, Burge and Van Horn were guided in the selection of tribes and groups to contact by the California Native American Heritage Commission (McNulty 1999). The 33 persons visited and those additionally recommended to be contacted by the California Native American Heritage Commission have been put on the GMP mailing list for updated information about the plan's progress. The 33 persons visited and those recommended individuals not yet contacted are listed later in this report with their names and other communication information.

On Thursday, July 15, 1999, Ralph Moore, then the parks' wilderness coordinator, joined Burge and Van Horn. This was to the offices of the Big Sandy and North Fork Rancherias. Mr. Moore talked about parallel, ongoing efforts in planning for the backcountry and wilderness areas of the parks, and he invited future communication about these areas of the parks.

Related to tribal sovereignty, the meetings were mainly intended to represent government-to-government communications, which are conducted with federally recognized tribes. In practice, all but one of the meetings represented in this report were conducted with federally recognized tribes. The Sierra Foothills Wuksachi Tribe of the Western Mono or Monache people on the western slope of the Sierra Nevada was the one tribe consulted that is not currently federally recognized. The latter consultation was conducted as a matter of courtesy and policy (NPS 2001c). In past years, the tribe has lent its name to the Wuksachi village development and participated in the 1999 Memorial Day opening ceremonies of this new lodging and dining hotel complex for visitors in Sequoia National Park. The Sierra Foothills Wuksachi Tribe is in the process of seeking federal recognition from the Bureau of Indian Affairs.

The list below indicates whether officers and tribal council members or staffers of the tribal government were present plus tribal community members. In addition, two former tribal chairpersons were met with individually and interviewed as elders of their respective tribes. These were Vernon Miller, former tribal chairperson of the Fort Independence Indian Community of Paiute Indians, and Terald Goodwin, former tribal chairperson of the Paiute-Shoshone Indians of the Lone Pine Community. By way of example of a meeting, Neddeen Naylor, another former tribal chairperson of the Paiute-Shoshone Indians of the Lone Pine Community attended the main meeting held with the Lone Pine Community, which was hosted by Irene Button, treasurer of the Paiute-Shoshone Indians of the Lone Pine Community.

TRIBES VISITED

Thirteen tribal governments or groups and one Indian group associated with a museum in Bishop, California, were scheduled for consultation on the trip. The museum is known as the Owens Valley Paiute-Shoshone Indian Cultural Center, which promotes interest in Indian heritage in the Owens Valley and the surrounding mountains including the Sierra Nevada to the west. The tribal peoples affiliated with the parks were identified initially through reviewing the works of anthropologists Julian Steward (1935), John Herron (1980), and Albert Elsasser (1988), as follows: the Owens Valley Paiute (including the Shoshone who migrated from the Great Basin and joined the Paiute in the Owens Valley), the Yokuts, the Tubatulabal, and the Western Mono (also known as the Monache people). The Wuksachi Tribe is a band or division of the Western Mono people. Different bands or divisions of these peoples constitute various tribal governments or organizations today, as can be seen in the two lists that follow of the tribes visited on this trip and those not yet visited.

It is believed that Mono people at some point about 500 years ago crossed the Sierra Nevada from the east and settled on the western slope (Elsasser 1988:26). They are known today generally as the Western Mono or Monache people. The Paiute and Shoshone remained on the eastern slope with the result that the Owens Valley Paiutes speak Eastern Mono. The Eastern Mono and Western Mono languages today remain mutually intelligible to some extent (Shipley 1978:88; Elsasser 1988:26). This was confirmed on the trip by Paiute elder Neddeen Naylor at Lone Pine.

Western Mono and Eastern Mono peoples are members of the Uto-Aztecan family of American Indian languages. Tubatulabal and Western Shoshone (also known as Newe) are too (Crum 1994:11). In contrast, the "westside" Yokuts of Table Mountain and Tule River are Yokutsan speakers of the Penutian language family (Shipley 1978:83).

Eight tribal governments were visited. An asterisk (*) beside a tribe's name in the list below signifies two things: (1) that the tribe is federally recognized and thus eligible to receive services from the Bureau of Indian Affairs (BIA) of the United States Department of the Interior, and (2) that the meeting with this tribe had government-to-government status consistent with recognized levels of tribal sovereignty. The federally recognized tribal names shown in this report are given as officially listed in the *Federal Register* 65, no. 49 (Mar. 13, 2000): 13298–303).

Eastern Slope of the Sierra Nevada

*Big Pine Band of Owens Valley Paiute-Shoshone Indians of the Big Pine Reservation, California (population 403). Present: Janet Gutierrez, tribal vice chairperson; Alan Bacock, environmental planner of the tribal staff; and community members Jeanette Negrete, Dorothy Stewart, and Richard Stewart. Matthew Morales, a graduate student in social science from Northern Arizona University, Flagstaff, Arizona, also attended. He lived in the Big Pine community the summer of 1999.

*Fort Independence Indian Community of Paiute Indians of the Fort Independence Reservation, California (population 58). Present: Wendy Stine, tribal chairperson; Michael Swift, tribal vice chairperson; and Pearl Symmes Budke, community member. Vernon Miller, former tribal chairperson, was interviewed separately at the Eastern California Museum, an opportunity arranged by Bill Michael, director.

*Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California (population 235). Present: Irene Button, treasurer; Neddeen Naylor, former tribal chairperson; community members Ann Marie Astills, Leslie Button, Eugene Button, Bruce Cotton, and Frank Diaz. Terald Goodwin, former tribal chairperson, was interviewed separately at his home.

Western Slope of the Sierra Nevada

*Big Sandy Rancheria of Mono Indians of California (includes members of the Western Mono or Monache people, population 108). Present: Tribal staffers Wiley Carpenter and Kathlien Childers, manager and environmental specialist, respectively, Environmental Programs Office of the tribe; and Michelle LeBeau, community member and attorney at law.

*Cold Springs Rancheria of Mono Indians of California (a division of the Western Mono or Monache people, population 163). Present: Tribal staffers Lonnie Bill and Virgil Lewis, environmental coordinator and environmental assistant, respectively.

*North Fork Rancheria of Mono Indians of California (a division of Western Mono or Monache people, population 75). Present: Delores Roberts, tribal chairperson; and tribal council members Barbara Coleman, Connie DeSilva, Alvin McDonald, Ron Roberts, and Juanita Williams.

Sierra Foothills Wuksachi Tribe (a division of the Western Mono or Monache people, population 100). Present: Marie Dominguez Riley, tribal chairperson.

*Tule River Indian Tribe of the Tule River Reservation, California (includes members of the Yokuts people, population 803). Present: Alec Garfield, tribal council member; and Ken Cauwet, development manager of the tribal staff.

FURTHER CONSULTATION

Appointments with six of the fourteen tribal entities identified prior to the trip could not be scheduled. These six are listed below. Federal recognition is indicated by an asterisk (*) beside a tribe's name. Further communication is called for in conjunction with the need for ongoing Native American consultations.

Eastern Slope of the Sierra Nevada

Kern Valley Indian Community (also known as the Tubatulabal Tribe, population 400)

Owens Valley Paiute-Shoshone Indian Cultural Center (population not applicable)

*Paiute-Shoshone Indians of the Bishop Community of the Bishop Colony (population 1,437)

Western Slope of the Sierra Nevada

Dunlap Band of Mono Indians (population unknown)

*Table Mountain Rancheria of California (of the Yokuts Tribe, population 81)

Wukchumni Tribe (of Mono Indians, population unknown)

AMERICAN INDIAN CONCERNS

American Indian concerns as encountered during the consultation meetings fall into two categories: (1) topics relevant to the general management plan (GMP) and (2) topics that can be addressed independently of the GMP through administrative means. Actions that may be proposed regarding ways the parks could be managed over the next fifteen to twenty years come under the general purview of the GMP, a planning effort currently underway for the parks. Such proposals must go through a public input and review process before agency approval and implementation. Some topics, however, can be addressed more immediately under administrative procedures; such procedures are in support of NPS *Management Policies* (NPS 2001b).

Reconstructing an American Indian village in the parks for visitor education may be identified as a GMP issue. This idea was advanced primarily by Marie Dominguez Riley as chairperson of the Sierra Foothills Wuksachi Tribe, a western slope tribal group. Interestingly, the overall concerns with active involvement in visitor education, conducting daily arts and crafts demonstrations, and designating a meeting place or constructing a specific structure for American Indian use were also voiced by members of the Cold Springs Mono Rancheria and the North Fork Mono Rancheria.

Additionally, the ongoing preparation of the parks' fire management plan was discussed with each group or individual during the course of the consultation meetings. The planning process, legal sideboards, and a fire fact sheet were discussed briefly. Direct comments on any aspect of the parks' fire management program were solicited. Marie Dominguez Riley expressed clear interest for the Sierra Foothills Wuksachi. She related that tribal members were most familiar with area United States Forest Service lands but would want to work closely with Sequoia-Kings Canyon planners to help identify park areas for possible access, use, and gathering activities relative to the role of fire, or even planning

for fire suppression activities. She noted that her group's interest could include such things as protecting or encouraging the growth of sedges or acorns.

A member of the Big Pine Paiute community (Richard Stewart) supported the use of prescribed fires and noted that they can be an avenue for assistance, employment, or interpretation opportunities for tribal members. Several members of the Tule River Indian Tribe voiced interest in pursuing opportunities for training partnerships with the NPS in a variety of areas including fire management and fire suppression. It was suggested that the Intergovernmental Transfer Act may be a mechanism to share expertise and advance training opportunities. North Fork Mono Rancheria attendees similarly expressed interest in sharing expertise and receiving advice on instituting a tribal, prescribed fire program.

The desire to share with the NPS American Indian knowledge about continuing traditional uses of various plants and their locations in the parks, and in turn for the NPS to share resource management strategies and research information (including fire management planning efforts) with interested tribes concerning such locations, are appropriate GMP topics. Such areas might be zoned in the GMP as suitable for certain activities and not others, or for certain levels of activities, including gathering and prescribed burning. This was another idea articulated by Marie Dominguez Riley. In practice, the parks' continuing Native American consultations would serve to gather specific information about the places in the parks where particular plants grow, about the ongoing traditional uses of such plants, and about any special ways the plants might be harvested or picked to ensure their conservation and propagation. Access to and use of park resources is discussed in Chapters 5, 6, and 8 of the NPS *Management Policies* (NPS 2001b).

American Indian desires to sell authentic, local and regional Indian arts and crafts, such as bead work, pottery, and basketry, were expressed on both sides of the Sierra Nevada. Mention was made by Marie Dominguez Riley for the Sierra Foothills. The same interest was also brought up in discussion earlier in the trip on the eastern slope for the Big Pine Paiute people, by Dorothy and Richard Stewart, mother and son artists. This idea could be considered and encouraged administratively as it is not a GMP issue. Guidance can be found in Chapter 10 of the NPS *Management Policies* (NPS 2001b).

During the July 1999 consultations, American Indians expressed their wish that the NPS not charge affiliated Indians, in pursuit of traditional purposes, the admission fee required of visitors to enter the parks. Several tribes raised this topic, including the Sierra Foothills Wuksachi, the Tule River Tribe, and the Cold Springs Mono Tribe. Such expedited entry into the parks without fee for traditional purposes could be decided administratively and is outlined in Chapter 8 of the *Management Policies 2001* (NPS 2001b).

Questions were asked about ordinary camping and about packing horses. A Paiute woman, Wendy Stine, the current tribal chairperson at Fort Independence, wanted to know about fees and the locations of campgrounds in the parks to camp overnight with her family. A Shoshone man, Terald Goodwin, a former tribal chairperson at Lone Pine, has packed horses commercially in the past for backcountry visitors. He would enter the Sierra Nevada from the eastern side through United States Forest Service (USFS) land in the southern part of the Owens Valley and end up in Sequoia National Park. He maintains a few horses today in Lone Pine where he runs a recycling business. He entertains the idea of packing horses again after retiring from recycling. He wanted to be reassured that he could go back to packing horses. He would need to familiarize himself with the packing and backcountry regulations and permit requirements of the two different agencies, the USFS and the NPS. The fact that a person, who happens to be the chairperson of a tribal council on the eastern slope of the Sierra Nevada (Fort Independence), asked a general-information question about family camping spots, and their rules and fees, suggests that such information about the parks could be more widely distributed. But there are no GMP or administrative issues here concerning these two inquiries.

The Paiute Tribe at Big Pine and the Wuksachi Tribe at Sanger expressed a desire for more active participation in park interpretation programs. The expressions were made by Dorothy Stewart and her son Richard Stewart for the Paiute and by Marie Dominguez Riley for the Wuksachi. Pertinent questions were raised along with several examples of how to better include the historic and contemporary roles of Indian peoples into the parks' interpretive efforts. The questions dealt with interpreting "Whose history?" and "Whose culture?"

An example of how the scope of interpretation could be broadened was offered by Marie Dominguez Riley in noting that her grandfather was very active in logging activities in the Converse Basin area adjacent

to the Grant Grove area of Kings Canyon National Park. Marie suggested that this story, and similar stories about the Indian presence in historic logging operations, could be added to existing interpretive work. She noted, too, that ceremonial activities still occur in the nearby federal forest and park areas, such as the recent efforts to bring closure to the Ghost Dance of 1870 in the Eshom Valley, a historic ceremony that had been disrupted by non-Indians in the late 1800s (Gayton 1930). The Eshom Valley of Eshom Creek is east of the village of Badger on the western side of the Sierra Nevada and west of the boundary between Kings Canyon National Park and Sequoia National Park that is in the Redwood Canyon area of Redwood Creek.

In moving towards the idea of involving American Indians more directly in interpretive efforts, it was noted that "higher ups" (those who make and affect decisions) should be involved in future meetings. It was noted further that the NPS should make real efforts to find support monies to facilitate American Indian involvement, such as travel expenses and stipends for elders. Several members of the Big Pine Paiute Tribe voiced similar concerns with not only increasing the involvement of American Indians in the parks' interpretation efforts, but also they underscored that the parks' efforts often miss the "living," contemporary aspect of local cultures. An extension of the idea of more direct interpretive involvement was a desire to see a substantial effort to involve Indian youth in park educational programs. A strong desire for "partnerships," or opportunities to cooperate with the National Park Service, emerged, especially from the Big Pine Paiute community. Attendees from the Tule River Indian Tribe also noted an interest in tribal involvement in interpretation.

The idea that many members of the general public are often surprised that American Indian groups are "still here" and fully active in the modern world surfaced, too. This occurred in the conversations at the North Fork Mono Rancheria and the Cold Springs Mono Rancheria. They are survivors on lands not too far from those they occupied at European contact. It was noted at several of the meetings that the parks' interpretive program could be one way to raise the visibility of contemporary area Indian groups, perhaps by way of the parks' maps and brochures.

New opportunities need to be created, it was said, for American Indians to contribute to interpretive content on Indian history and culture in the area and, if possible, to interact with visitors as paid interpretive guides. The latter could appropriately be implemented at Wuksachi village (a commercial, concession-run facility) in Sequoia National Park, as outlined by Marie Dominguez Riley, as the area is part of the Wuksachi traditional territory. Further, it was felt that the concession facility could lend itself to American Indian-led talks and craft demonstrations. Chapter 7 of the *Management Policies* outlines appropriate mechanisms for such consultation and demonstration work (NPS 2001b).

As an example of material for interpreting Indian use of trails through the high Sierra Nevada, Dorothy and Richard Stewart told of one of their Paiute ancestors three generations ago who hiked through the mountains as a young man as the most direct route between the two sides. He took a job in a more populous area on the west side and then returned home to the east side the same way in the same manner some time later. This brief family story is indicative of the types of oral history information still available and which could more fully inform interpretation efforts geared, especially, to the park visitor.

Seeking and incorporating more American Indian material and affording American Indians participation in interpretation could be handled now through park administrative decisions. More active participation could entail (1) increased Indian input into the content of park interpretation programs through further Native American consultations and (2) the possibility of American Indians serving as interpretive guides. The parks could investigate various sources of funding to see if the latter were financially feasible. See *Management Policies,* chapter 7 (NPS 2001b).

RECOMMENDATIONS

In the interest of maintaining and improving long-term relations it would clearly be beneficial to all concerned that the Native American consultations initiated by the parks continue. Contacts from the July 1999 trip are listed below for further communication. Several information-sharing meetings could be scheduled by park staff throughout a given year and held on both sides of the Sierra Nevada.

It is recommended that precise locations and species types of traditional plant gathering areas in the parks of the Wuksachi Tribe be investigated through further Native American consultations with the tribe and Marie Dominguez, tribal chairperson. Such knowledge could contribute to possible alternative zoning considerations in the ongoing GMP and should be reported to the GMP team. Over the long

term, it is recommended that the parks continue to consult with the Wuksachi to learn more about traditional plant areas and their uses. The Wuksachi would like to share indigenous knowledge to improve park practices for plant sustainability. And the Wuksachi would like to receive the findings of any park research affecting the plant sustainability of such areas.

It is recommended that precise locations, species types, and the indigenous knowledge of traditional plant gathering areas in the parks with, minimally, the Sierra Foothills Wuksachi Tribe be investigated through further consultations. Such knowledge could contribute to possible alternative zoning considerations and management prescriptions in the ongoing GMP and should be reported to the GMP team. Additionally, the Sierra Foothills Wuksachi Tribe, in particular, would like to receive the findings of any park research affecting the plant sustainability of such areas.

Also with regard to the Sierra Foothills Wuksachi Tribe, it is recommended that the feasibility be considered of pursuing the re-construction of a traditional Wuksachi village in Sequoia National Park under one or more of the GMP alternatives. Further Native American consultations with the Sierra Foothills Wuksachi and other interested tribal groups would be appropriate to explore.

It is recommended administratively that the NPS help interested American Indian tribes and groups arrange for and promote the sale of genuine Indian art and crafts, such as pottery, beadwork, basketry, cradleboards, dreamcatchers, and the like in the parks that are made locally and regionally. Dorothy and Richard Stewart (Paiutes) and Marie Dominguez Riley (Wuksachi) are people to talk with on this subject.

When pursuing traditional purposes, it is recommended administratively that the idea be adopted and promoted actively of not charging affiliated Indians the admission fee required of visitors to enter the parks. Expedited entry into the parks without fee for these neighboring affiliated Indians would be the goal and would articulate well with current agency policy (NPS 2001b).

By working with American Indian groups administratively, park interpretation and education programs could incorporate more information about the history and culture of the parks' Indian neighbors. It is recommended that the parks explore ways to increase American Indian participation in interpretation, including the possibility of paid interpretive guides through alternative ways of funding. Guidance in these efforts can be found in the recently updated *Management Policies* (NPS 2001b).

NATIVE AMERICAN CONSULTATION MEETINGS

The following persons were met and talked with in small groups or individually the week of July 11, 1999. (Listed alphabetically by last name.)

1. Ann Marie Astills, Community Member, Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

2. Alan Bacock, Environmental Planner, Big Pine Band of Owens Valley Paiute-Shoshone Indians of the Big Pine Reservation, California

3. Lonnie Bill, Environmental Coordinator, Cold Springs Rancheria of Mono Indians of California

4. Pearl Symmes Budke, Community Member, Fort Independence Indian Community of Paiute Indians of the Fort Independence Reservation, California

5. Irene Button, Treasurer, Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

6. Leslie Button, Community Member, Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

7. Eugene Button, Community Member, Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

8. Wiley Carpenter, Programs Manager, Environmental Programs Office, Big Sandy Rancheria of Mono Indians of California

9. Ken Cauwet, Development Manager (Non-Indian), Tule River Tribal Council, Tule River Indian Tribe of the Tule River Reservation, California

10. Kathlien Childers, Environmental Specialist (Non-Indian), Environmental Programs Office, Big Sandy Rancheria of Mono Indians of California

11. Barbara Coleman, Tribal Council Member, North Fork Rancheria of Mono Indians of California

12. Bruce Cotton, Community Member, Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

13. Connie DeSilva, Tribal Council Member, North Fork Rancheria of Mono Indians of California

14. Frank J. Diaz, Co-Chair and Community Member, respectively, Koso Native Graves Protection Association and Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

15. Marie Dominguez Riley, Chairperson, Sierra Foothills Wuksachi Tribe

16. Alec Garfield, Tribal Council Member, Tule River Tribal Council, Tule River Indian Tribe of the Tule River Reservation, California

17. Terald Goodwin, Community Member (Former Tribal Chairperson), Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, California

18. Janet Gutierrez, Vice Chairperson, Big Pine Band of Owens Valley Paiute-Shoshone Indians of the Big Pine Reservation, California

19. Michelle LeBeau, Esq., Attorney at Law and Community Member, Big Sandy Rancheria of Mono Indians of California

20. Virgil D. Lewis, Tribal Environmental Assistant, Cold Springs Rancheria of Mono Indians of California

21. Alvin McDonald, Tribal Council Member, North Fork Rancheria of Mono Indians of California

22. Bill Michael, Director (Non-Indian), Eastern California Museum of Inyo County

23. Vernon J. Miller, Community Member (Former Tribal Chairperson), Fort Independence Indian Community of Paiute Indians, Fort Independence Indian Reservation

24. Matthew Morales, Graduate Student Intern (Non-Indian), Big Pine Paiute Tribe of the Owens Valley, Big Pine Indian Reservation

25. Neddeen Naylor, Community Member (Former Tribal Chairperson), Paiute-Shoshone Indians of the Lone Pine Community

26. Jeanette Negrete, Community Member, Big Pine Band of Owens Valley Paiute-Shoshone Indians of the Big Pine Reservation, California

27. Delores Roberts, Chairperson, North Fork Rancheria of the Mono Indians of California

28. Ron Roberts, Tribal Council Member, North Fork Rancheria of the Mono Indians of California

29. Dorothy Stewart, Artist and Community Member, Big Pine Band of Owens Valley Paiute-Shoshone Indians of the Big Pine Reservation, California

30. Richard Stewart, Artist and Community Member, Big Pine Band of Owens Valley Paiute-Shoshone Indians of the Big Pine Reservation, California

31. Wendy L. Stine, Chairperson, Fort Independence Indian Community of Paiute Indians of the Fort Independence Reservation, California

32. Michael D. Swift, Vice Chairperson, Fort Independence Indian Community of Paiute Indians of the Fort Independence Reservation, California

33. Juanita Williams, Tribal Council Member, North Fork Rancheria of the Mono Indians of California

Appendix E: Water and Wastewater Use

TABLE E-1: SUMMARY OF WATER USE AND ISSUES

Park Area	Owner-ship	Water Source / Location	Size	Water Capacity	Annual Water Use in 2000 (gallons)	Facilities and Distribution System	Comment
Kings Canyon National Park							
Cedar Grove Area							
Sheep Creek	Public	Sheep Creek	Large	86,400 gpd	43,698	165,000 gal tank, 84,000 gal backup tank 27,000 ft distribution pipe	No backup generator. During power outages must be hand chlorinated. Main is good; galvanized steel pipe laterals should be replaced with plastic. Need use meter between tank and distribution vault. Valve boxes not secure (need concrete and vandal-resistant lids). Need new manufactured intake screen. Line from intake to tank is CCC era spiral wound steel (need replacement soon). Sand filter backwash discharge needs holding tank and leachfield.
Lewis Creek	Private	Connected to Sheep Creek	Small		11,250	2,000 gal concrete tank	Same as above.
Copper Creek	Private	Copper Creek	Small	2,880 gpd	33,100	50 gal. tank 300 lin. ft. of distri-bution pipe	Rebury PE line from waterhead (only 12″ deep) to prevent damage from wildlife, sun, heat, and vandalism.
Packer Dorm	Private	Kings River	Small	14,000 gpd	127,400	Tank 2,300 gal 2,500 distribution pipe	All buried pipe is old and corroded. Laterals between source and tank – so chlorine retention times at those faucets and sprinklers are too low, and Cl residuals are too high. Electric controls for pump are at generator rather than pumphouse. Current system pulls surface water; a well is preferred.
Grant Grove Area							
Grant Grove	Public	Round Meadow artesian well near Panoramic Point road Rona Springs Merritt Springs 400′ well	Large	Total combined water capacity from four sources is 22.1 to 65 gpm. Normal production is 108,000 gpd; drought pro-duction 31,824 gpd. Demand projected to be 53,650 gpd. Round Meadow well capacity 7.5–25 gpm. Rona and Merritt springs combined capacity 5–8 gpm. Well capacity 32 gpm during wet weather.	8,608,000	1,200,000 gal. storage reservoir near Rona and Merritt springs; another storage reservoir 15,000 lin. ft. asbestos cement lines and thousands of feet of steel and cast iron piping.	Drought plan developed that relies heavily on storage reservoirs that must also retain a 200,000-gallon fire reserve. The storage capacity could be depleted in 55 days. Conservation measures have been taken; active measures could include closure of public showers and laundry facilities to add 33 days. 400′ well likely to have water drop by as much as 70% to 9.6 gpm Aggressive nature of water dissolves copper from pipes into water. Groundwater contamination from Wilsonia septic systems. Remaining 15,000′ lin. ft. of asbestos-cement lined water mains need to be replaced; 5,000 lin. ft. just replaced. Lines located in sensitive areas Root intrusions into water lines increase line failures.
Wilsonia	Private	11+ wells				8+ water storage tanks	No information about Masonic tract
Sequoia National Park							
Dorst to Giant Forest Area							
Lost Grove	Public	Spring fed				2,200 gal tank 1,200 lin. ft. of pipeline	Nonpotable.

Park Area	Owner-ship	Water Source / Location	Size	Water Capacity	Annual Water Use in 2000 (gallons)	Facilities and Distribution System	Comment
Cabin Creek	Public	Cabin Creek				1,000 gal tank 1,500 lin. ft. of pipeline	New waterline needed to filter building. New filtration needed.
Dorst	Public	Turkey Creek	Medium	13 gpm	647,275	50,000 gal tank 10,625 lin. ft. of pipeline	15% of distribution line needs to be replaced
Wuksachi / Red Fir						Water tank	Supplied by Wolverton
Lodgepole	Public	Surface water Silliman Creek	Large		28,951,040 (combined Lodgepole and Wolverton use)	Storage reservoir Chlorination facilities Multi-media filtration system 26,000' distribution lines	Drought plan able to keep up with demands in recent drought years. Waterhead intake damaged; sandbox leaks. Distribution lines 40 years old and damaged by roots and rock movement. Being replaced in campground area the past 3 years. Current work in tent area only.
Wolverton	Public	Wolverton Creek	Large	Capable of producing 129,000 gpd	(see above)	Four major storage reservoirs (see Pinewood, Wuksachi), Chlorination facilities Slow sand filtration plant 140,000 lin. ft. of pipelines	System serves Wolverton, Wuksachi, Giant Forest / Pinewood. Low flows to waterhead at drought times. Careful monitoring needed to meet demand. Distribution lines in Giant Forest are 60+ years old, some in sensitive natural areas that could cause major damage if need to be repaired.
Pinewood						Two 50,000 gal. tanks	Supplied by Wolverton. Tanks need to be relined.
Bearpaw (Backcountry)		Spring	Small		81,810	5,000 gal tank 2,680 lin. ft. of pipe	Nonpotable. Deteriorating walls in waterhead collection basin, which needs to be enlarged. Pipe to ranger station needs to be rehabbed, and PVC waterline to campground needs to be replaced and buried.
Crescent Meadow	Public	Creek	Medium		382,778	5,000 gal tank 13,200 lin. ft. pipe	Needs new filtration system, new storage reservoir for adequate chlorine contact time. Waterhead dam area needs the dam raised to allow for better supply of water. Pipeline has multiple areas with repairs from failures. Section to Moro Rock comfort station needs to be replaced.
Crystal Parking lot	Public	Creek fed	Medium		230,048	10,000 gal tank 2,200 lin. ft. of pipeline	Needs new filtration system to replace outdated 3M bag filters. Low flows to waterhead in drought times Careful monitoring to meet demand and keep turbidities in compliance. Water system off line at Cave.
Foothills Area							
Buckeye	Public	New well	Medium	60 gpm	238,833	5,000 gal tank 2,532 lin. ft. of pipeline	
Hospital Rock	Public	New well replaced spring	Medium	12 gpm	313,170	10,000 gal tank storage reservoir, chlorinator 1,000 lin. ft. of pipelines	
Potwisha	Public	Well	Medium		679,995	20,000 gal tank. Storage reservoir, chlorinator 1,800 lin. ft. of pipelines	New distribution lines constructed in 2001.
Ash Mountain	Public	Spring / surface water	Large	New multi-media filtration system improved water quality	10,213 (presumably total for all areas)	Storage reservoir, chlorination facilities 25,500 lin. ft. of pipelines	Drought plan developed Waterhead requires extensive maintenance because dam removed 100,000 gal. storage tank leaks

Park Area	Owner-ship	Water Source / Location	Size	Water Capacity	Annual Water Use in 2000 (gallons)	Facilities and Distribution System	Comment
							and has areas of weakness For distribution system, additional 2,500 lin. ft. need to be replaced
Mineral King Area							
Atwell Mill	Public	Creek	Small	7,200 gpd	18,590	1,000 gal tank	
Cold Spring	Private	Spring	Small	26,000 gpd	46,614	5,000 gal tank	
Permit Cabins at Mineral King	Private	Various: Spring Creek (5), unnamed creek (1) Deadwood Creek (1), West Mineral King water system (29), Monarch Creek (6), CC creek (1), private springs (4) Crystal spring (1), pipe in creek of East Mineral King water system (1)					
Silver City	Private	Creek	Small	5,700 gpd	18,590	3,000 gal tank	

TABLE E-2: SUMMARY OF WASTEWATER AND SEWER FACILITIES

	Facilities	Design Capacity (gallons per day) and usage	Comment
Kings Canyon National Park			
Cedar Grove Area (3,268,980 gallons of effluent in 2000); no other information provided.			
Sheep Creek	Wastewater treatment plant	55,000 gpd	Compliance varies
Lewis Creek	Septic system	750 gpd	
Copper Creek	Vault toilet	NA	
Packer Dorm	Septic system	750 gpd	
Grant Grove Area (5,664,618 gallons of effluent in 2000)			
Grant Grove	Collection system. 3 lift stations (Sunset, Pine Camp, Swale work center) Tertiary wastewater treatment plant.	85,000 gpd with 213 lbs/day biological oxygen demand (BOD) Summer demand is 53,650 with 134 lbs/day of BOD. Winter capacity is 42,000 gpd. 1999 flows were 11,892, with proposed increases of 12, 250 gpd for a total winter demand of 24,442 gpd.	Performing as designed to satisfaction of Regional Water Quality Control Board. 6-8" cast-iron pipe system around 50 years old. Sliplined in 1990s. 30 manholes repaired and grouted. Root intrusion into manholes plagues winter operations. Pine camp lift station expansion needed. Future compliance with water quality objectives in 1995 Tulare Lake Basin Waste Discharge Requirements for Grant Grove will be adopted by the Regional Water Quality Control Board. Current design is unlikely to meet standards; significant modifications will need to be budgeted and completed. It is controversial for the Visalia wastewater treatment plant to accept NPS biosolids / sludge. An alternate disposal arrangement should be researched.
Wilsonia	Approximately 235 septic systems	Undocumented	Serious water quality concerns
Sequoia National Park			
Lodgepole District (Dorst to Giant Forest) (8,833,227 gallons of effluent in 2000)			
Lost Grove	Septic tank	3,000 gal	
Cabin Creek	Septic tank	3,000 gal	
Dorst	Septic tanks Dump station	14 3,000 gal tanks; four leachfields rehabbed in 1999. 2000 gal tank; leachfield rehabbed in 1999.	Pumped annually by outside contractor with park funds.
Halstead Meadow	Vault toilet		Cleaned and pumped every two years. Sewage goes to Cover Creek plant.
Red Fir	Sprayfields for Clover Creek plant		New sprayfield, many areas with defective valves and lateral line due to inferior construction. Repairs made in 2001. 8 of 17 leachfield control valves must be replaced. Old sprayfields, repairs to main line, risers, and sprinkler heads being replaced.
Wuksachi Village	Collection system		20,000 lin. ft. of line connects to Clover Creek plant.
Clover Creek Treatment Plant at Wuksachi	Activated sludge extended aeration plant.	180,000 gpd capacity Actual demand is 70,000 gpd in summer and 20,000 gpd in winter.	Summer sludge drying beds. Winter sludge accumulated in digesters. Clear effluent to leachfields or sprayfields

	Facilities	Design Capacity (gallons per day) and usage	Comment
			Dried sludge sent to City of Visalia WWTP. Winter flows have increased with addition of new concession facilities. Overhaul of headworks needed to improve operational efficiency. Winter use basins will eventually need enclosed roofs.
Lodgepole	Collection system. 2 lift stations Vault toilet in picnic area RV dump station	Cleaned and pumped every two years. Sewage goes to Cover Creek plant. 3,000 gal septic tank. New leachfield installed in 1987.	5,200 lin. ft. of line. Collection system slip lined in 1990s. Problem with runoff infiltration in the spring. Smaller booster station with larger station that pumps sewage 6,000 lin. ft. to Clover Creek plant. Pumped twice annually by contractor with park funds. No charge for use.
Wolverton	Leachfield for corral Picnic area?		NPS area has pit toilets.
Wolverton / Sherman Shuttle area	Ten-stall vault proposed (6 women / 4 men)	3,000 gal septic tank	
Sherman Tree	Current septic Four-stall vault toilet proposed	3,000 gal septic /leachfield	Sewage is being removed by pumper truck daily and transported to Clover Creek plant for processing. System to be abandoned when new vault comes on line. Vault uses evaporative process to reduce liquids.
Pinewood – supplied by Wolverton	Sewered toilet with septic tank and leachfield		2001 installation
Bearpaw – Backcountry	Septic system	3,000 gal septic	Pumped and cleaned in 1992
Giant Forest	Septic tank / leachfield for Museum area Two-stall vault proposed for Round Meadow		New tank / leachfield installed in 1999. 4 facilities (museum, residence 55, museum and lower Kaweah comfort stations) in museum area connected to system
Crescent Meadow	Existing – septic tank / leachfields at Crescent Meadow / Moro Rock Vault proposed for Moro Rock / Crescent Meadow	3,000 gal septic tank each	Moro Rock leachfield rehabbed in 1997. Winter season vault toilet at Moro Rock.
Crystal Cave	Cave system Parking lot?	5,000 gal septic tank w/spray disposal (parking lot)	Cave system leachfield is not in compliance and no longer in use.
Foothills Area			
Buckeye Campground	Septic tank	2,500 gal septic tank	Low flush toilets cause sewage flow problems in pipes going to septic tank.
Hospital Rock	Septic tank	2,500 gal	
Potwisha	Upper comfort station / septic tank Lower comfort station / septic tank RV dump station septic tank	2,500 gal tank 3,000 gal tank 4,000 gal tank	Low flush toilets cause sewage flow problems in pipes going to septic tank for both comfort stations. Dump station pumped out twice annually by contractor with park funds. No charge to visitors.
Ash Mountain Treatment Plant	11,200' collection lines 2 lift stations Activated sludge plant 2 polishing ponds Effluent sprayfield & backup	17,000 gpd inflow rating. (1,634,300 gal. of effluent in 2000)	Collection lines sliplined in 1996/97. Sludge pumped by local company and truck to Visalia wastewater treatment plant. California state standards variance for sprayfield must be obtained for wet and rainy seasons; new standards may require change in practices. Pumping now must occur 4-5 times annually due to increasing sewage, creating budget concern.
Buckeye Housing Area	2,700' lines Activated sludge treatment plant. Polishing pond Sprayfield	Rated at 3,600 gpd (309,800 gallons of effluent in 2000)	Aging system. Sludge pumped by local company and truck to Visalia wastewater treatment plan. Changing California standards mean effluent may soon require leachfields with sprayfields only for summer use. Backup location must be found. Pumping now must occur four times annually (rather than twice) due to changes in housing policy, resulting in process upsets and budget impacts.
North Fork	No facilities	NA	
South Fork	Vault toilet	1,000 gal septic tank for camp host	
Mineral King Area			
Mineral King	Ranger station and campground	Septic tank – 750 gal @ 50 gpd	Campground vault toilets pumped when needed
Permit Cabins at Mineral King	Information received from 48 cabins.	Individual leachfields (200-1,000 SF) and septic systems (50-1,500 gal)	Sizes of septic systems vary and are often unknown. Some septic tanks have been pumped out regularly and recently, others not. While most graywater from cabin sinks also goes to septic tanks, there are 9 cabins where graywater goes directly onto vegetation or ground surface and 8 cabins putting graywater into sumps or subsurface drain pits.
Silver City	4 government housing	1,250 gal septic tank @ 50 gpd	New leachfield Oct 2000.

Appendix F: Choosing by Advantages

CHOOSING THE PREFERRED ALTERNATIVE

The National Park Service used a decision-making process called Choosing by Advantages (CBA) to help make early, value-based decisions and to develop a preferred alternative for the Sequoia and Kings Canyon general management plan. This value engineering process is used to improve value or make selections in many types of construction and planning projects. Congress mandated a decision-making system so that logical decisions could be made and tracked, taking into account both cost-effectiveness and the NPS mission.

The CBA process was customized to meet the high level of complexity of this general management plan. Two workshops with park staff took place in October 2001. At the first workshop, held October 2–4, 2001, the decision factors and variables within those decision factors were developed. Decision factors are areas where there are differences in alternatives, actions that are common to all alternatives (e.g., congressionally mandated programs for protecting natural or cultural resources) are not considered in the CBA process because there would be no difference between the alternatives. Workshop participants identified 19 factors, as listed below. :

Protect Cultural and Natural Resources

1. Protect natural resources — Prevent loss, and maintain and improve conditions.
2. Preserve cultural resources — Prevent loss, and maintain and improve conditions.

Provide for Visitor Enjoyment

3. Provide visitor services.
4. Provide educational opportunities.
5. Provide wilderness and backcountry experiences.
6. Provide traditional recreational experiences.
7. Provide new or non-traditional recreational experiences.
8. Provide stock experience opportunities.

Improve Efficiency of Park Operations

9. Improve operational efficiency and sustainability.

9A. Operations

9B. Stock / helicopter use

10. Effective use of housing.

11. Effective use of concessioner.

Provide Cost-Effective, Environmentally Responsible, and Otherwise Beneficial Development for the National Park Service

12. Relationship to Native American and tribal groups and organizations.
13. Relationship to private land inside park boundaries (inholdings).
14. Utility use of public land.
15. Non-profit use of public land.
16. Private use of public land.
17. Relationship to regional land use patterns.
18. Relationship to adjacent/local public land agencies.
19. Socioeconomic influence.

Park staff then scrutinized each alternative to describe broadly how each variable was addressed and to summarize the differences at the second CBA workshop, held October 22–26, 2001. At this workshop the alternatives were assessed and ranked according to the decision factors, and then a preferred alternative was developed. Attributes for each decision factor/variable were listed, and then the set of attributes that was the least preferred for each factor was identified. For each factor, all other alternatives were described *by their advantages* relative to that least preferred set of attributes. A pre-agreed common terminology scale for comparing advantages was used. The most advantageous sets of attributes could be identified for each factor. Comparing the importance of most advantageous sets of attributes for all factors, a paramount advantage was chosen and assigned a numeric value of 1000. That paramount advantage was for factor 4 — the ability of the alternative to provide all kinds of educational opportunities:

- orientation to park and recreational opportunities
- access to programs and activities (ranger programs, guided and self-guided activities,

park newspaper, publications, waysides, exhibits)

- educational / orientation outreach beyond park boundaries (traveling programs, Internet sites)
- appropriate visitor-oriented facilities (visitor centers, ranger contact stations, museums, education / nature centers, trail centers, wilderness contact stations, orientation kiosks)

SCORING

Compared to that paramount advantage other numeric values were assigned first to the most advantageous set of attributes for every factor, and then for other sets of alternative attributes for that same factor. Least preferred sets of attributes had no advantages and therefore received no points. All relative importance numeric values were reconsidered to see if anything had been overlooked. Then the numeric value of advantages for each alternative was added, and the most advantageous alternative identified — alternative D, with 6,325 advantage points (see Table F-1).

COST ESTIMATES, LIFE-CYCLE COSTS, AND FUNDING

Class C (early conceptual) initial cost estimates were then applied to alternatives A, B, C, and D (see Table F-2). These costs were for comparative purposes only, and since class C costs are well in advance of most projects, these numbers should not be used for construction cost estimating or budgeting.

Life-cycle cost estimates were also developed for each alternative. Life-cycle costing is the development of all the significant costs of ownership of an item, system, or facility, over a specified length of time. Economic analysis is used to put out-year expenditures on a common basis. For the purposes of this general management plan, life-cycle costs only focused on areas where there was a significant difference in operating or staffing the park between plan alternatives.

Expenditures of over $104 million are common to every alternative and include common actions that are already planned and funded, including over $57 million of concession commitments, $22.9 million through the line-item construction program, and over $26 million in the Federal Lands Highway Program. Other actions in the plan would be financed through

TABLE F-1: SUMMARY OF ADVANTAGES FOR THE GENERAL MANAGEMENT PLAN ALTERNATIVES

Factor					Alternative
1. Natural Resource Protection	100	325	0	50	200
2. Cultural Resource Preservation	200	0	400	300	300
3. Visitor Services	100	0	350	450	400
4. Educational Opportunities	0	200	600	1000	950
5. Wilderness /Backcountry Experiences	0	100	400	450	550
6. Traditional recreational Experiences	200	0	950	550	800
7. New or Non-traditional Recreational Experiences	400	0	100	800	600
8. Recreational Stock Use	75	0	250	150	350
9a. Park Operations	100	0	500	500	500
9b. Administrative Stock / Helicopter Use	300	0	250	250	275
10. Housing	250	0	300	300	350
11. Concessions		NSA			
12. Native American Relationships	0	0	50	150	125
13. Private Land Use inside Park Boundaries (Inholdings)	200	100	0	400	400
14. Utility Use (Hydroelectric Facilities)	0	100	0	0	100
15. Non-profit Use of Public Land	10	0	10	25	25
16. Private Use of Public Land	300	450	0	550	550
17. Relationships to Regional Land Use Patterns	100	0	100	250	250
18. Relationships to Adjacent / Local Public Land Agencies	100	0	150	100	200
19. Socioeconomic Influence	10	0	10	50	75
Total Advantage	2,445	1,275	4,420	6,325	7,000

TABLE F-2: SUMMARY OF ADVANTAGES, INITIAL CLASS C COSTS, AND LIFE-CYCLE COSTS

	Alternative A	Alternative B (No-Action Alternative)	Alternative C	Alternative D	Preferred Alternative
Advantage Total Points	1,275	2,445	4,420	6,325	7,000
LIC funded (common to all)	$22,914,000	$22,914,000	$22,914,000	$22,914,000	$22,914,000
FLHP funded (common to all)	$26,652,000	$26,652,000	$26,652,000	$26,652,000	$26,652,000
Concession commitment (common to all)	$57,000,000	$57,000,000	$57,000,000	$57,000,000	$57,000,000
Total already funded / committed	**$104,566,000**	**$104,566,000**	**$104,566,000**	**$104,566,000**	**$104,566,000**
Initial Total Cost	$175,504,000	$125,000,000	$159,465,000	$250,600,000	$144,000,000
Not yet funded	$70,938,000	$21,434,000	$54,899,000	$146,034,000	$39,434,000
Life-Cycle Cost	$287,000,000	$288,700,000	$341,700,000	$449,200,000	$326,600,000

transportation programs, the fee demonstration program, concessioners, or donated funds.

The difference in costs of alternatives relates to those proposals that have not yet been funded and the life-cycle costs for the alternatives. Not-yet-funded costs ranged from a high of $146 million for alternative D, to a low of $21 million for the no-action alternative, with the preferred alternative having a not-yet funded cost of $39 million. The preferred alternative would increase the advantages of alternative D while reducing the not-yet-funded costs by around $107 million.

Life-cycle costs include the common costs. While alternative D had the greatest number of advantage points (6,325), the initial and life-cycle cost were also very high — almost $250.6 million in initial costs, and life-cycle costs in excess of $449 million for the next 25 years. In contrast the lowest life-cycle cost alternative was alternative A, with just over $126 million in initial costs, and a life-cycle cost of $287 million. The preferred alternative had initial costs of $144 million and a life-cycle cost of $326 million.

THE PREFERRED ALTERNATIVE

The preferred alternative was then crafted in order to maintain or increase advantages while reducing costs. Every factor, attribute, and advantages was reexamined. Alternative D served as the base for the preferred alternative, advantages were added to it, and some actions that that did not bring advantages were removed (for example, the 1700-car parking garage at a cost of $48 million, and a $20, million Grant Grove bypass road) because an analysis indicated they were not needed. Additionally, instead of replacing visitor centers, existing visitor centers would be expanded and exhibits replaced. The resulting preferred alternative reduced cost by over $110 million and increased advantages by 675 points (see Table F-1).

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Glossary

accessibility — Buildings, facilities, and programs are required to be made accessible to people with disabilities. Legislation that provides for this includes: the Architectural Barriers Act of 1968, the Rehabilitation Act of 1973, 1984 Uniform Federal Accessibility Standards (UFAS), and the Americans with Disabilities Act of 1990.

anthropogenic — Caused by or attributed to humans.

ADT — Average daily traffic. The average number of vehicles that use a roadway during one day.

backcountry — More remote, roadless, and less intensely used park areas where the majority of use is by overnight campers who hike or ride stock. Backcountry includes federally designated wilderness.

backcountry / wilderness management plan — An implementation plan that would detail how the visions in the general management plan would be carried out in backcountry and wilderness areas.

carrying capacity — The upper limit of human use and desired visitor experiences while maintaining desired resource conditions without degradation. Management prescriptions in the general management plan conceptually describe the desired social experiences or carrying capacity for each zone.

commercial service — Any visitor-related service, activity, or facility for which compensation, monetary or otherwise, is exchanged. By law, all commercial services in parks must be authorized by the superintendent. These would include, but not be limited to, lodging, food and beverage, gift sales, convenience item and supply sales, firewood sales, marina operations, and activities such as guiding, outfitting, interpretation, and touring. Commercial services can originate within the park or outside.

***de minimis* —** In the context of the Clean Air Act's general conformity requirements, *de minimis* levels are annual quantities of air pollutant emissions below which a federal action in a non-attainment or maintenance area is presumed to conform to a state's implementation plan without undergoing more rigorous air quality analysis or modeling.

Conformity *de minimis* levels are levels of emissions below which a federal action in a non-attainment or maintenance area is presumed to conform to a state's implementation plan and would not require further review. Actions in attainment areas are presumed to conform and do not require analysis with respect to *de minimis* levels. Emission values representing the Clean Air Act conformity *de minimis* levels are shown in the table at the bottom of the page:

DO #2 — *Director's Order #2: Park Planning.* Establishes a tiered planning approach for preparing general management plans for national park system units. Park purpose and significance statements guide the general management plan, which sets the vision for **what** the park should be. The general management plan in turn gives broad direction and goals for more detailed implementation plans.

DO #12 — *Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making.* Provides guidance for the National Park Service in implementing the regulations of the Council on Environmental Quality for the National Environmental Policy Act.

Conformity *de minimis* Levels

Non-Attainment Area (NAA)	Tons/year
Ozone (VOCs or NO_x):	
Serious NAA's	50
Severe NAA's	25
Extreme NAA's	10
Other ozone NAA's outside an ozone transport region	100
Marginal and moderate NAA's inside an ozone transport region:	
VOC	50
NO_x	100
Carbon monoxide: All NAA's	100
SO_2 or NO_2: All NAA's	100
PM_{10}:	
Moderate NAA's	100
Serious NAA's	70
Pb: All NAA's	25

Maintenance Areas	Tons/year
Ozone (NO_x), SO_2 or NO_2: All maintenance areas	100
Ozone (VOCs):	
Maintenance areas inside an ozone transport region	50
Maintenance areas outside an ozone transport region	100
Carbon monoxide: All maintenance areas	100
PM_{10}: All maintenance areas	100
Pb: All maintenance areas	25

SOURCE: 40 CFR Chapter 1, sec. 51.853 Applicability.

draft environmental impact statement (DEIS) — A document that describes and assesses the impacts of proposed alternative actions and is available for public comment for a minimum of 60 days.

effect — The result of actions on natural and cultural resources, aesthetics, economic, social or human health and safety. Effects can be direct, indirect, or cumulative. Used interchangeably with "impact."

enabling legislation — The legislation that establishes national parks and that can be modified by subsequent legislation. Enabling legislation often describes the park purpose — the special attributes that caused the areas to be set aside with the mandate to protect these resources in an unimpaired condition for future generations.

endemism — The relative abundance of endemic species found within a geographic area or region. High endemism indicates that there are many native species found only in that area or region. Low endemism indicates that most species found in that area are also found in other places.

final environmental impact statement (FEIS) — The document that responds to public comments on the draft environmental impact statement and may include corrections and revisions as a result of public comment.

fire management plan — An implementation plan that details how the natural fire regimes and prescribed fires will be managed in the parks.

frontcountry — Areas that are easily accessible to visitors (as opposed to backcountry) and that are more highly used, often by single-day visitors to the parks. The frontcountry contains developed park areas and is generally along or accessed by transportation corridors.

general management plan — A legislatively required plan that usually guides park management for 15–20 years. It is accompanied by a draft and final environmental impact statement.

Historic American Buildings Survey (HABS), Historic American Engineering Record (HAER), Historic American Landscapes Survey (HALS) — On July 23, 1934, the National Park Service, the Library of Congress, and the American Institute of Architects established the Historic American Buildings Survey to administer a long-range plan to comprehensively document historic American architecture. Since its establishment, more than 28,000 structures have been documented through measured drawings, written histories, and large-format photography, which have been made publicly available through the Library of Congress.

Growing out of HABS, the Historic American Engineering Record was established on January 10, 1969, by the National Park Service, the Library of Congress, and the American Society of Civil Engineers to identify and record sites, structures, and objects significant in the history and development of engineering and industry in the United States. With a similar documentation process of measured and interpretive drawings, written histories, and large-format photography, HAER has documented, and made publicly available through the Library of Congress, information on more than 7,500 engineering and industrial sites and processes.

In October 2000 the National Park Service, the Library of Congress, and the American Society of Landscape Architects established the Historic American Landscapes Survey for the systematic documentation of these landscapes. The intent of the new HALS program is to document significant historic landscapes throughout the country via measured drawings, large-format photography, written narrative, and other documentation techniques. HALS will document the dynamics of landscapes not already seen in the existing HABS/HAER program models.

hydrophytic — Vegetation that is adapted for development, growth, and reproduction in wet soils.

impact — See effect.

impact topic — A specific category of analysis for impacts, such as wildlife, vegetation, or historic structures. Impact topics are identified through public scoping and a determination of what aspects of the human environment would be affected if an action was implemented. An analysis of impacts for a specific topic may be required as a result of a public law (Endangered Species Act) or an executive order (e.g., wetlands, floodplains).

implementation plan — A plan that tiers off the general management plan and that specified how one of more of the desired resource conditions, visitor experiences, or proposed actions will be accomplished. Implementation plans can be specific resource protection plans or construction documents.

incidental business permit (IBP) — A type of commercial service. An incidental business begins and ends outside a park, as do all transactions and

advertising associated with the service. The service is authorized by a permit and may not exceed a two-year term. No land or facilities are assigned to the permit holder, who has no exclusive rights to use park facilities. All permits contain conditions that can limit use both spatially and temporally for the protection of resources and the enhancement of the visitor experience. Incidental business permits are soon to be converted to commercial use authorizations (CUAs) per Public Law 105-391.

inholding — Privately owned land that is inside the boundary of the parks.

karst — A type of topography characterized by caves, sinkholes, disappearing streams, and underground drainage. Karst forms when groundwater dissolves pockets of limestone, dolomite, or gypsum in bedrock.

lentic — A nonflowing or standing body of fresh water, such as a lake or pond.

level of service (LOS) — A transportation term that describes how well a road functions. LOS A is the best, with free-flowing traffic, and LOS F is the worst, with the roadway at capacity, resulting in stop-and-go traffic, long lines.

lotic — A flowing body of fresh water, such as a river or stream.

maintenance area — A geographic region that at some time in the past was designated as a non-attainment area but has been redesignated through a formal rule-making process as being in attainment with the national ambient air quality standards. Maintenance areas continue to be monitored more rigorously than attainment areas and to be subject to controls to keep it in attainment with the national standards.

national ambient air quality standards (NAAQS) — Concentrations of criteria pollutants in ambient air (outdoor air to which the public may be exposed) below which it is safe for humans or other receptors to be permanently exposed. The Clean Air Act establishes two types of national air quality standards. **Primary standards** set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. **Secondary standards** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

management prescription — A term that describes desired resource conditions and visitor experiences in a particular area that will be achieved by implementing the general management plan. Typically there will be numerous management prescriptions that apply to different types of areas, that prescribe different resource conditions, and that foster various visitor experiences.

management zone — The geographic location for implementing a management prescription.

mitigation — Measures that are taken to reduce the intensity of an adverse impact. Examples include alternative actions that would avoid the impact, that would minimize the impact by limiting the magnitude of the action, that would rectify the impact by repairing, rehabilitating, or restoring a resource, that would reduce impacts through preservation or maintenance; or that would compensate for the impact through replacement or substitution (e.g., creating a wetland environment at another location).

National Register of Historic Places — The federal listing of nationally, regionally, or locally significant properties, sites, or landscapes. Sites listed on the national register listing must be considered when making management decisions if an action could affect that site. Parks are to assess properties over 50 year old to determine their eligibility for nomination to the national register.

Native American consultation — Various laws, policies, and executive orders require consultation with indigenous peoples who may have traditional or contemporary interests in the lands now occupied by parks. This compliance activity is considered government-to-government consultation. There are 13 named tribes or groups with traditional or contemporary interests in Sequoia / Kings Canyon National Parks.

National Environmental Policy Act of 1969 (NEPA) — This public law requires federal agencies to look at alternatives for proposed major federal actions and to fully analyze the impacts of those alternatives on the human environment before a decision is made.

nephelometric turbidity unit (NTU) — A measure of turbidity or cloudiness in a water sample. Suspended materials in water (e.g., plankton, sewage, silt, clay) scatter and absorb light passing through it. The amount of light scattered is determined by a photocell, which is then converted to an NTU measurement.

oligotrophic — A water body characterized by a low supply of plant nutrients.

paleoecological — The study of ancient or prehistoric ecosystems.

peak season — High-use times from Memorial Day to Labor Day, when most park visitation occurs.

programmatic accessibility — Section 504 of the Rehabilitation Act of 1973 expands access for people with disabilities. "No otherwise qualified individual . . . shall be excluded from or be denied the benefits of . . . any program or activity." Programs could include activities, educational programs, and interpretive exhibits.

public involvement — Public input sought in planning for public lands and required under the National Environmental Policy Act. Comment is sought at the initial scoping and at the DEIS stages. Substantive comment on the DEIS must be responded to in the FEIS.

record of decision (ROD) — The document that states which alternative analyzed in an environmental impact statement has been selected for implementation and explains the basis for the decision. The decision is published in the *Federal Register.*

section 106 compliance — Section 106 of the National Historic Preservation Act of 1966 mandates that federal agencies take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Place. The Advisory Council on Historic Preservation is to be given opportunity to comment on proposed actions.

special park uses — As defined by *Director's Order #53: Special Park Uses,* a special park use is a short-term activity that takes place in a park area and:

- provides a benefit to an individual, group or organization, rather than the public at large;
- requires written authorization and some degree of management control from the NPS in order to protect park resources and the public interest;
- is not prohibited by law or regulation; and
- is neither initiated, sponsored, nor conducted by the NPS."

special park uses: right or privilege — Section 3.3 of *Director's Order #53* defines right or privilege:

> A superintendent must determine whether a request for a special park use is prohibited or mandated, or involves a right or privilege. A right is based on property ownership, legislative or treaty entitlement, or Constitutional guarantee. Where none of these factors is present, the use is a privilege over which the superintendent may exercise varying degrees of discretion and control. Generally speaking, citizens must be afforded the opportunity to exercise their rights; however, a superintendent may establish permit conditions to protect park visitors, park resources and values. When considering a privilege, the superintendent has the additional task of determining whether the activity will be allowed.

special use permit — Instrument issued by a superintendent to an individual or organization to allow the use of NPS-administered resources or to authorize activities in 36 CFR Parts 1–7 that require a permit.

special use permit cabins — Privately owned cabins permitted by PL 95-625, sec. 314, to be on federal land in the Mineral King area of Sequoia National Park for a set period of time (from 1978 until the death of the permittee of record in 1978). The cabins were originally allowed to be on public land under a United States Forest Service program, which has since been discontinued.

stock — Animals such as horses, mules, or llamas that can be ridden or used to carry supplies.

tiered planning — An approach to planning that progresses from conceptual plans to site-specific action plans. For the National Park Service, the general management plan sets the broad vision for what the parks should be, and other layers of implementation planning provide the details of how to accomplish the vision.

vision — A broad philosophical statement that describes what the parks should be with regard to future resource conditions and human experiences.

VMT — Vehicle miles traveled. Measure used to compute automobile emissions.

wilderness — An area set aside by Congress as part of the wilderness preservation system. The intent is to protect lands in their primitive condition with little impact by man. These are unroaded areas where no development is permitted, and certain uses, such as wheeled vehicles are prohibited.

xeric — Characterized by dry conditions.

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Caltrans	California Department of Transportation
NPS	National Park Service, U.S. Department of the Interior
USFS	U.S. Forest Service, U.S. Department of Agriculture
USFWS	United States Fish and Wildlife Service, U.S. Department of the Interior

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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